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10/530,219

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Tomohiro Yamada

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11/16/2006

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EXAMINER

SHECHTMAN, SEAN P

ART UNIT

PAPER NUMBER

2125

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/530,219             | YAMADA ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Sean P. Shechtman      | 2125                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/5/05</u> .                                                  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Claims 1-15 are presented for examination.

#### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### *Specification*

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

#### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-6, 8-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "said basic process" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the process parts group" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "the basic process" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "the disassembly definition information" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the movement" in line 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "the interference" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1152362 to Maeda (hereinafter referred to as Maeda).

Referring to claims 1, 2, 14, 15, Maeda teaches a method/computer/system/instruction means stored in said storage medium for generating a parts catalog consisting of a parts list and corresponding disassembly illustrations, comprising the steps of (a) assigning a reference numeral/symbol based on the parts list, to each of parts groups belonging to an initial process of disassembly, and to each of parts groups belonging to an intermediate process of disassembly, respectively; wherein each of the parts groups is an assembly consisting of one or more parts (Paragraphs 226; Fig. 38); (b) building a disassembly algorithm based on said parts list; and (c)

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generating disassembly illustrations based on said disassembly algorithm, wherein minimum disassembly units of the disassembly illustrations are parts and parts groups assigned with said reference numeral/symbols, and displaying said reference numeral/symbol for each of the parts and parts groups in the disassembly illustrations (Paragraph 250; Fig. 51, see also the international search report of the instant application).

6. Claims 1-5, 7-10, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1288868 to Kawai (hereinafter referred to as Kawai).

Referring to claims 1, 14, 15, Kawai teaches a method/computer/system/instruction means stored in said storage medium for generating a parts catalog consisting of a parts list and corresponding disassembly illustrations (whole document), comprising the steps of

(a) assigning a reference numeral/symbol based on the parts list (Col. 8, lines 27-31, Fig. 2, the drawing is based on the assembly construction data, Fig. 3), to each of parts groups belonging to an initial process of disassembly, and to each of parts groups belonging to an intermediate process of disassembly (Fig. 8, elements of group 14-18; OR Col. 6, lines 28-43, first level; Col. 9, lines 28-36), respectively;

(b) building a disassembly algorithm based on said parts list (Fig. 10; Col. 6, lines 4-43);  
and

(c) generating disassembly illustrations based on said disassembly algorithm (See Figs. 8-9), wherein minimum disassembly units of the disassembly illustrations are parts assigned with said reference numeral/symbols (Col. 6, lines 4-43, lowest level) and wherein minimum disassembly units of the disassembly illustrations are parts groups assigned with said reference

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numeral/symbols (Col. 6, lines 4-43, first level is not the lowest level), and displaying said reference numeral/symbol for each of the parts and parts groups in the disassembly illustrations (See Figs. 8-9).

2. The method of claim 1, wherein each of the parts groups is an assembly consisting of one or more parts (See Fig. 3).

3. The method of claim 1, wherein the parts list includes definition information of dependency relationships among parts and group relationships among groups, and comprises a tree structure consisting of nodes and leaves, which are processes and parts, respectively, wherein each of the nodes comprises a basic process and an intermediate process performed in said basic process, and wherein each of the leaves consists of a process parts group for grouping a plurality of parts or parts groups, and said parts or parts groups (Fig. 3, Col. 5, lines 8-21).

4. The method of claim 1, wherein said step (b) generates the disassembly algorithm by adding to the parts list, a moving coordinate system of said basic process and said intermediate process, and a respective moving position of the parts or parts groups and the process parts group along said moving coordinate system, that are determined based on said parts list (Col. 6, lines 44-58; Fig. 8).

5. The method of claim 4, wherein in said step (b), as for the moving coordinate system the coordinate system of a part or parts group that forms the base of the basic process is selected as the coordinate system of the basic process or the intermediate process (Col. 6, lines 4-43).

7, 8. The method of claim 1, further comprising the step of (d) modifying the disassembly algorithm and illustrations after generating the disassembly illustrations; wherein said step (d) modifies each of the disassembly illustrations by modifying a position, a bearing or a scale of

each of the parts or parts groups for each of the basic process, the intermediate processes and connecting processes connecting the basic and intermediate processes, wherein the basic, intermediate and connecting processes constitute the disassembly definition information (Fig. 8-9; Col. 6, line 4 – Col. 7, line 1).

9. The method of claim 8, wherein said step (d) generates and presents a user interface for modifying the position, bearing or scale for each of the parts or parts groups () (Figs. 2-9).

10. The method of claim 8, wherein said step (d) permits modification of a camera view point information to modify the disassembly illustration (Col. 6, line 43 – Col. 7, line 1).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai as applied to claims 1-5, 7-10, 14, 15 above, and further in view of U.S. Pat. No. 5,619,630 to Minami et al (hereinafter referred to as Minami).

Referring to claim 6, Kawai teaches all of the limitations set forth above however fails to teach a shape of each of the parts or parts groups is approximated with a circumscribing polygon thereof, and the moving position is set such that each polygon is at a minimum distance from each other which is greater than a predetermined ratio.

However, Minami teaches analogous art wherein a shape of each of the parts or parts groups is approximated with a circumscribing polygon thereof, and the moving position is set

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such that each polygon is at a minimum distance from each other which is greater than a predetermined ratio (Col. 42, line 30 – Col. 43, line 15).

Kawai and Minami are analogous art because they are from the same field of endeavor, producing an exploded view of parts/products.

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teachings of Kawai with the teachings of Minami.

One of ordinary skill in the art would have been motivated to combine these references because Minami teaches the manpower for producing an exploded view can be decreased by eliminating the operator's conventional work to move parts by individually specifying a moving direction and a moving amount for each part (Col. 3, lines 26-30).

8. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai as applied to claims 1-5, 7-10, 14, 15 above, and further in view of JP 2003-006245 to Aragaki (hereinafter referred to as Aragaki), supplied by applicant.

Referring to claims 11-12, Kawai teaches all of the limitations set forth above however fails to teach modifying the disassembly illustration by determining an interference among the parts or parts groups during the movements thereof for each of the basic, intermediate and the connecting processes, wherein the basic, intermediate and connecting processes constitute the disassembly definition information, and by modifying the position, bearing or scale for each of the parts or parts groups in the processes; wherein said interference among the parts or parts groups during the movements thereof is determined by calculating the interference among respective polygons circumscribed around each of the parts or parts groups.



However, Aragaki teaches analogous art comprising: modifying the disassembly illustration by determining an interference among the parts or parts groups during the movements thereof for each of the basic, intermediate and the connecting processes, wherein the basic, intermediate and connecting processes constitute the disassembly definition information, and by modifying the position, bearing or scale for each of the parts or parts groups in the processes; wherein said interference among the parts or parts groups during the movements thereof is determined by calculating the interference among respective polygons circumscribed around each of the parts or parts groups (whole document; see also the international search report of the instant application).

Kawai and Aragaki are analogous art because they are from the same field of endeavor, shape processing.

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teachings of Kawai with the teachings of Aragaki.

One of ordinary skill in the art would have been motivated to combine these references because Aragaki teaches a shape processor which can automatically create a plan in the state of decomposition (Abstract). Furthermore, Aragaki teaches detecting interference between modeled parts during movement and moving the modeled parts to avoid the interference (Abstract).

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai as applied to claims 1-5, 7-10, 14, 15 above, and further in view of "Automatic Arrangement of Meta-

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Objects in Assembly Illustrations” to Katsuma (hereinafter referred to as Katsuma), supplied by applicant.

Referring to claim 13, Kawai teaches all of the limitations set forth above however fails to teach the step of drawing a lead line from each of parts and parts groups within the disassembly illustration in order to display said reference numeral/symbol, wherein said step of drawing a lead line projects a movement vector from a pre-disassembly position to a post-disassembly position for said parts and parts groups, onto a plane perpendicular to a view point vector from a view point, and draws said lead line for said reference numeral/symbol from a post-movement object along an axis direction of a shorter component of analyzed vector components constituting such a projected vector.

However, Katsuma teaches analogous art comprising: the step of drawing a lead line from each of parts and parts groups within the disassembly illustration in order to display said reference numeral/symbol, wherein said step of drawing a lead line projects a movement vector from a pre-disassembly position to a post-disassembly position for said parts and parts groups, onto a plane perpendicular to a view point vector from a view point, and draws said lead line for said reference numeral/symbol from a post-movement object along an axis direction of a shorter component of analyzed vector components constituting such a projected vector (whole document; see also the international search report of the instant application).

Kawai and Katsuma are analogous art because they are from the same field of endeavor, assembly illustrations.

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teachings of Kawai with the teachings of Katsuma.

One of ordinary skill in the art would have been motivated to draw a lead line, as taught by Katsuma, to link or associate non-graphic information with a graphic entity, thereby increasing the modeling accuracy.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754. The examiner can normally be reached on 9:30am-6:00pm, M-F.

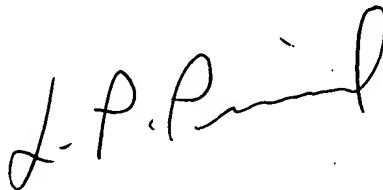
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SPS

Sean P. Shechtman

November 11, 2006



**LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100**